Math 330 (Number Systems), Section 3 (Dmytro Savchuk) Spring 2010 Homework assignment 11 (due Monday, April 19)

- 1. Prove Proposition 9.12
- 2. Do Project 9.13(i)
- 3. Determine whether each of the following functions is an injection, surjection, or bijection. Prove your answers.
  - (a)  $f: \mathbb{Z} \to \mathbb{Z}$  given by f(n) = 2n
  - (b)  $g: \mathbb{Z} \to \mathbb{Z}$  given by g(n) = -n + 1
  - (c)  $h: \mathbb{Z} \to \mathbb{N} \cup \{0\}$  given by h(n) = |n|
  - (d)  $j: \{n \in \mathbb{Z} : n \ge 2\} \to \mathbb{Z}$  given by  $j(n) = f_n$ , where  $f_n$  is the *n*-th Fibonacci number